

AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph beginning at page 1 line 2 of the specification with the following:

—This application claims subject matter that is described in co-pending United States Patent Application filed simultaneously herewith and entitled “Reserve Cell-Array Nanostructured Battery,” Serial No. 11/803,565 filed March 18, 2004 and United States Patent Application filed simultaneously herewith and entitled “Reversibly-Activated Nanostructured Battery,” Serial No. 10/803,641 filed March 18, 2004.—

Please replace the paragraph beginning at page 7 line 28 of the specification with the following:

—In a recent attempt of a nanostructured battery, referred to herein as a cell-array battery, at least one electrode in the battery has been divided into cells. By selectively limiting the penetration of the electrolyte into only specific cells, the voltage and current generated by the battery can be accurately controlled and the life of the battery can be better managed. This attempt is described in U.S. Patent Application Serial No. 10/803,641, filed simultaneously herewith, entitled "Reserve Cell-Array Nanostructured Battery" the entirety of which is hereby incorporated by reference herein.—

Please replace the paragraph beginning at page 8 line 25 of the specification with the following:

—The illustrative battery 900 of FIG. 9 functions in similar fashion to the battery 701 of FIG. 7. However, as described more fully in the above-referenced 11/803,565 application entitled "Nanostructured Cell-Array Battery," filed simultaneously herewith, the battery 900 of FIG. 9 permits greater control over the current and/or voltage produced by the battery, as well as better control over the life of the battery. Specifically, such control is achieved by dividing at

least one electrode in the battery into an array of cells, or pixels. The array of cells is arranged in columns and rows, such as, illustratively, columns 909 of cells and rows 910 of cells. By allowing the electrolyte to penetrate only one or more particular cells in the array, for example by only passing a low voltage over the nanostructures in those cells, the current/voltage produced by the battery 900 can be selected at a particular desired level depending on the application. Thus, for example, at a point during the active life of the battery, cells 903 on the positive electrode, for example, are currently active, cells 902 are cells that have already been depleted and cells 904 are those cells that have not been activated. By progressively activating the cells in direction 908, for example, a desired voltage/current level and/or battery life may be maintained.—

Please replace the paragraph beginning at page 9 line 28 of the specification with the following:

—In the case whereby the electrolyte is to be immobilized (vitrified), a vitrifying substance 911 is disposed in the end-of-life cells 909 such that the substance is separated from the electrolyte by the nanostructures disposed in those cells. Thus, for example, once all unused cells of the electrode are depleted, the electrolyte liquid is caused to penetrate the nanostructures in cells 909, thus causing the vitrifying substance 911 to be released. One illustrative embodiment of how to achieve such a vitrification is to dispose monomers and polymerization initiators into the end of life cells. Illustratively, a mixture of di-functional and multifunctional monomers are used to insure high cross-link density of the polymer material once it is released. Such a high cross-link density increases the thermal stability of the polymer glass. In addition, a high crosslink density would increase diffusion rates of small molecules within the polymer glass matrix. Illustratively, the multifunctional monomer (i.e., > 2 reactive groups per molecule) is dissolved in a water soluble monomer, such as acrylamide, vinyl alcohol, polyethyleneglycol 400

diacrylate, or other suitable monomer. The multifunctional monomer which may be, illustratively, dipentaerythritol pentaacrylate, is dissolved into the water soluble monomer as most multifunctional monomers are not sufficiently water soluble. The polymerization initiator, illustratively Benzoyl Peroxide, is for example stored in separate end of life cells. Monomer groups that could react with the electrolyte would provide additional benefits. For example, incorporation of acrylic acid monomer, which is miscible in water, would both immobilize and neutralize an alkaline electrolyte.—

Please replace the paragraph beginning at page 10 line 29 of the specification with the following:

—In a second illustrative embodiment, instead of vitrification, when the electrolyte contacts a substance 912 between the nanostructures in one or more end-of-life cells, the chemical composition of the electrolyte is changed into a less toxic chemical compound, thus altering (e-g., neutralizing) the electrolyte. This is achieved, for example, by using an altering compound 912 in place of the vitrification substance described above. Once all unused cells of the electrode are depleted, the electrolyte liquid is brought into contact with the altering compound 912, thus beginning a chemical reaction between the electrolyte and the altering chemical 912 that results in the electrolyte becoming less toxic. One illustrative example of how a battery can be altered is shown by a particular type of Lithium battery. Specifically, many Lithium batteries use the toxic solvent thionyl chloride, thus forming what is known as a Lithium thionyl chloride (LiSOCl₂) battery. Such batteries are desirable in many applications due to their relatively light weight, low discharge rate, long shelf life, and relatively high voltage output per cell when compared to other batteries. Due to these qualities, such batteries are becoming more widely used. With increasing use, altering or otherwise altering the toxic thionyl chloride in those batteries after the battery has become discharged is highly desirable.—